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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/826,999	04/04/2001	Mary Bliss	E-1596 CIP	3583

7590 12/05/2003

Intellectual Property Services
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EXAMINER

LEE, HWA S

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 12/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/826,999

Applicant(s)

BLISS ET AL.

Examiner

Andrew H. Lee

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9,10,12-16 and 18-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7,9,10,12-16 and 18-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 reciting that the impinging occurs without additional optical elements make it vague since “impinging” leads one to look at the detector plane where the “impinging” occurs and if so, all interferometers would meet the limitation of “impinging without additional optical elements.” For example, Smith would teach that the cylindrical mirror (54) impinges the interference pattern onto the detector without additional optical elements since the cylindrical mirror is used to impinge the interference pattern onto the detector and there are no optical elements in between the cylindrical mirror and the detector. For examination purposes, it will be assumed there is no optical manipulation between the location where the interference pattern starts to occur and the detector.

Furthermore, claim 13 recites that the space has some material (gas, liquid, solid) suggesting that the material acts as an optical element, which contradicts claim 1 that there are no additional optical elements between the light sources and the detector.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 rejected under 35 U.S.C. 103(a) as being unpatentable over Smith (4,976,542) in view of Jenkins et al (Fundamentals of Optics).

Smith shows comprising the steps of:

(a) providing a first fixed electromagnetic energy source (58), a second fixed electromagnetic energy source (50), and a detector, wherein said second fixed electromagnetic energy source is virtual provided by a planar reflective surface (52) and said electromagnetic energy sources having a phase relationship;

(b) interfering an electromagnetic energy output from said first fixed electromagnetic energy source and said second fixed electromagnetic energy source, thereby producing an interference pattern in the spatial domain between said first and second fixed electromagnetic energy sources and said detector;

(c) impinging said interference pattern onto said detector,

(d) measuring the interference pattern; and

(e) transforming the interference pattern into a spectral content.

Smith does not show that interference pattern is impinged on the detector without manipulating the interference pattern by additional elements between the light sources and the detector.

Jenkins et al (Jenkins hereinafter) shows an interferometer having Lloyd's mirror wherein the impinging occurs without manipulating the interference pattern by additional elements.

At the time of the invention, one of ordinary skill in the art would have modified the Lloyd's mirror interferometer so that the impinging occurs without manipulating the interference pattern by additional elements in order to reduce the cost and have a simpler apparatus having fewer components.

3. Claims 4-7, 9, 10, and 12-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith and Jenkins as applied to claim 1 above, further in view of Krivoshlykov (6,016,197).

For claim 4, Smith and Jenkins show all the limitations except for the receiving of light into an optical fiber.

Krivoshlykov shows a spectrum analyzer comprising:

providing light in an optical fiber that has been altered from sensor (1), and using said altered light as said first fixed electromagnetic energy source and said virtual electromagnetic energy source.

At the time of the invention, one of ordinary skill in the art would have modified Smith to use optical fibers as Krivoshlykov uses in order to make the spectrometer smaller and easier to align the optical components as is well known in the art the advantages of optical fibers over bulk optical elements.

As for claims 5 and 15, both Smith and Krivoshlykov alter said light by splitting said light.

As for claims 6-8, 16 and 17, Krivoshlykov teaches that light is altered by sensor (1) and it is notoriously well known in the art that Bragg gratings are used as optical sensors and that light source is used to send light to the sensor (test material) and then to the detector.

As for claim 9, Jenkins shows on page 264, that the distance between the two sources must be known in order to determine one of the other variable (wavelength, distance from detector to light sources).

As for claim 13 and 18, Smith, Jenkins, nor Krivoshlykov expressly show where the sample is in order to alter the light. Jenkins however suggest that since since there is a relationship of the distance between the two light sources, phase difference between the light interfering, wavelength of the light source, it would be obvious to one of ordinary skill in the art modify one variable while keeping the other variables constant in order to determine the properties of the unknown variable including changing the phase of the light of one beam while keeping the other constant and that the phase can be changed at any location along the "measuring" beam.

Response to Arguments

4. Applicant's arguments with respect to claims 1-7, 9, 10, 12-16, have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Papers related to this application may be submitted to Technology Center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the PTO Fax Center located in CP4-4C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Center numbers are 703-872-9306 for regular communications and for After Final communications

If the Applicant wishes to send a Fax dealing with either a Proposed Amendment or for discussion for a phone interview then the fax should:

- a) Contain either the statement "DRAFT" or "PROPOSED AMENDMENT" on the Fax Cover Sheet; and
- b) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

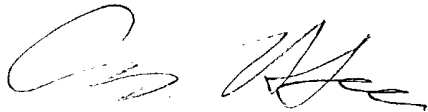
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Hwa Lee whose telephone number is (703) 305-0538. The examiner can normally be reached on M-Th. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 703-308-4881.

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A handwritten signature in cursive script, appearing to read 'Andrew Lee'.

Andrew Lee
Patent Examiner
Art Unit 2877

November 29, 2003/ahl

A handwritten signature in cursive script, appearing to read 'Frank G. Font'.

Frank G. Font
Supervisory Patent Examiner
Technology Center 2800